

# DTIC FILE COPY

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
1a. REPORT SECURITY CLASSIFICATION <b>UNCLASSIFIED</b>			1b. RESTRICTIVE MARKINGS <b>NONE</b>		
<b>AD-A217 951</b>			3. DISTRIBUTION / AVAILABILITY OF REPORT <b>APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED.</b>		
			5. MONITORING ORGANIZATION REPORT NUMBER(S) <b>AFIT/CI/CIA- 89-020</b>		
6a. NAME OF PERFORMING ORGANIZATION <b>AFIT STUDENT AT SAINT LOUIS UNIVERSITY</b>		6b. OFFICE SYMBOL (If applicable)	7a. NAME OF MONITORING ORGANIZATION <b>AFIT/CIA</b>		
6c. ADDRESS (City, State, and ZIP Code)			7b. ADDRESS (City, State, and ZIP Code) <b>Wright-Patterson AFB OH 45433-6583</b>		
8a. NAME OF FUNDING / SPONSORING ORGANIZATION		8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER		
8c. ADDRESS (City, State, and ZIP Code)			10. SOURCE OF FUNDING NUMBERS		
			PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.
					WORK UNIT ACCESSION NO.
11. TITLE (Include Security Classification) (UNCLASSIFIED) <b>Levels of Psychologic Stress of Air Force Staff Nurses Working in Intensive Care Units, Non-Intensive Care Units, and a Flying Unit</b>					
12. PERSONAL AUTHOR(S) <b>William M. Dean, B.S.N.</b>					
13a. TYPE OF REPORT <b>THESIS / DISSERTATION</b>		13b. TIME COVERED FROM _____ TO _____		14. DATE OF REPORT (Year, Month, Day) <b>1989</b>	
				15. PAGE COUNT <b>69</b>	
16. SUPPLEMENTARY NOTATION <b>APPROVED FOR PUBLIC RELEASE IAW AFR 190-1 ERNEST A. HAYGOOD, 1st Lt, USAF Executive Officer, Civilian Institution Programs</b>					
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD	GROUP	SUB-GROUP			
19. ABSTRACT (Continue on reverse if necessary and identify by block number)					
<div style="text-align: center;"> <b>DTIC</b>  <b>S</b> <b>ELECTE</b> <b>D</b>  <b>FEB 13 1990</b>  <i>CL</i> <b>D</b> </div>					
20. DISTRIBUTION / AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION <b>UNCLASSIFIED</b>		
22a. NAME OF RESPONSIBLE INDIVIDUAL <b>ERNEST A. HAYGOOD, 1st Lt, USAF</b>			22b. TELEPHONE (Include Area Code) <b>(513) 255-2259</b>		22c. OFFICE SYMBOL <b>AFIT/CI</b>

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LEVELS OF PSYCHOLOGIC STRESS OF AIR FORCE  
STAFF NURSES WORKING IN INTENSIVE  
CARE UNITS, NON-INTENSIVE  
CARE UNITS, AND A  
FLYING UNIT

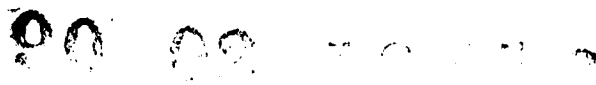
William M. Dean, B.S.N.



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DTIC TAB	<input type="checkbox"/>
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A Thesis Presented to the Faculty of the Graduate School  
of Saint Louis University in Partial Fulfillment of  
the Requirements for the Degree of  
Master of Science in Nursing  
(Research)

1989



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## DEDICATION

The author dedicates this research thesis to his wife, Shirley for her patience, understanding, love, and support during my illness and subsequent recovery without which this study could not have been completed.

## ACKNOWLEDGEMENTS

The author wishes to acknowledge the support and guidance of his committee chairperson and advisor, Anne Perry, and committee members Ruth Murray and Dorothy Cooke.

Dr. Barry Katz is acknowledged for his expertise and guidance in the analysis of the data.

A word of gratitude is expressed to the Lieutenant Colonel Whitlock, Major Huglin, and Captain Young for their expertise and support of this research project.

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## CHAPTER I

### Background

#### Introduction

The role that stress plays in all aspects of nursing is important, not only from the perspective of potential for disease causation but the role that stress plays in job satisfaction. First, nursing areas such as the intensive care units have been described as stressful (Gentry & Parkes, 1982). Second, hospital cost-containment policies have increased the acuity level of the patients on non-intensive care units. Third, there is increased financial pressure to manage patients who require intensive nursing measures on non-intensive care units. Lastly, the adoption of Diagnoses Related Groups (DRGs) has forced hospitals to seek increased patient volume and occupancy rates to offset decreased lengths of patient stays (Joel, 1987).

The supply of qualified nurses willing to staff intensive and non-intensive care units continue to dwindle. Nationwide, vacancies in hospital nursing positions more than doubled from 6.5% to 13% between 1985 and 1986 while enrollment in nursing programs has dropped 24% since 1983 (Clark, 1987).

Concerns over nurse burnout and the general shortages of critical care nurses have prompted the American Association of Critical Care Nurses to identify the



reduction of staff stress in critical care areas as one of its fifteen major research priorities (Lindsey, 1984). One method for the nursing profession to attract and maintain qualified nurses is to understand the role stress plays in the nurse's working environment. In addition, stressors and stressful nursing work areas must be identified.

### Theoretical Framework

Two theoretical frameworks are used to support the constructs of this research: The General Adaptation Syndrome Theory and The Saint Louis University School of Nursing Adaption Theory.

#### The General Adaptation Syndrome Theory

The General Adaptation Syndrome Theory was developed by Hans Selye (1956) to describe the phenomena of stress and physiological and psychological disease causation. Selye noted that many illnesses manifest themselves with the same signs and symptoms, namely, weight loss or gain, fatigue, malaise, aches and pains, and gastro-intestinal upsets. He believed that certain adaptive hormones were released during stress, and that these hormones help to create the common stress symptoms. Selye (1956) proposed that the body's general response to stress occurs in three phases: the alarm, the resistance, and the exhaustion phases.

### The Alarm Phase

The alarm phase is divided into two stages: alarm-reaction and the counter-shock. The alarm-reaction stage occurs with any exposure to a specific or nonspecific stimuli or demand to which the body must adapt or change. There is disruption of the bodies' homeostatic mechanisms (i.e. temperature regulation, and fluid and electrolyte). This is followed by the counter-shock stage whereby the body prepares to face the challenge. The counter-shock stage is a transitional stage of resistance and is characterized by enlargement of the adrenal cortex. The autonomic nervous system becomes very active in this stage and a large amount of epinephrine and cortisone is released into the blood stream. The effects of the stressor are generalized to the entire body, because no single organ system is capable of coping with the stressor (Selye, 1956).

### The Resistance Phase

In the resistance phase the body is attempting to restore homeostasis or adapt to the stressor. This is accomplished by increasing the body's resistance to the affending stressor and localizing the stressor to the smallest area of the body able to deal with it. Morphologic and biochemical changes observed in the alarm phase disappear. Usually, there is some physiologic and/or psychological behavioral change (Selye, 1956).

### The Exhaustion Phase

The exhaustion phase occurs if the stressor is too prolonged or severe for adaptation to occur. The body's attempts to localize the stressor breakdown, consequently, the stressor generalizes to the entire body. This is followed by the reemergence of stress as manifested by the body in the alarm phase. If this condition remains unabated and the intensity of the stressor is high enough, then total exhaustion, and even death, will occur (Selye, 1956).

### Saint Louis University School of Nursing Adaptation Framework

The second theoretical framework incorporated into this research is the Saint Louis University School of Nursing Adaptation Framework (1979). This framework was selected because stress and adaptation are intricately related.

### Definitions

The Adaptation Framework defines the concepts of adaptation, health, and illness. Adaptation is defined as "the individual's capacity to modify physical, developmental, psychological, social, and cultural behavior to meet needs to adjust to the environment when necessary" (Adaptation Framework, 1979, p. 1). Health is defined as a "dynamic state in the person's life cycle which implies continuous adaptation to stimuli in the

internal and external environment through optimum use of personal resources to achieve maximum potential of daily living" (Adaptation Framework, 1979, p. 1). Illness is defined as "an experience on the continuum of wholeness during which an individual recognizes some differences, discomfort, or dysfunction within himself, or when society recognizes and labels some discomfort, dysfunction, or deviance in an individual or group" (Adaptation Framework, 1979, p. 1). The theory is holistic and addresses the adaptation process of the individual, family, group, and community. In this context the framework can be universally applied.

#### Basic Assumptions

The adaptive response involves physiological or emotional changes needed to meet the demands of the person's internal or external environment. Individuals may display functional or dysfunctional adaptive responses. An individual's resources for adaptation include the individual's inborn factors in concert with the support of the family, community, and culture. Thus the more flexible the person, family, or group is, the greater the capacity to adapt and/or survive physiologically, emotionally, and socially. Adaptation is anticipatory as well as reactive and is an active process over time in relation to constantly changing demands. The

greater the number of changes occurring within a given time period, the more difficult the process of adaptation becomes.

### Dimensions of Adaptation

Adaptation can be examined from two perspectives, dimensions and resources. Dimensions of the individual, family, or community unit are fourfold: physiological, psychological, spiritual, and sociocultural. Resources are both internal and external to the unit.

### Physiologic Adaptation

Physiologic adaptations take place through three major types of responses: tissue hypertrophy, hyperplasia, and regeneration. A range of stability exists for each of numerous variables in the living person. "When one or more physiologic variables remain for a significant period beyond their ranges of stability, accommodative and adaptive processes fail and pathology results" (Adaptation Framework, 1979, p. 4).

### Psychological Adaptation

Psychological adaptation is influenced by growth, maturation, environmental influences, and individual perceptions. The well-organized, adapting ego can recognize anxiety and respond appropriately with defense mechanisms and coping behavior. These adaptive strategies help restore a new balance between the individual and the

psychological stressor. Mental illness results when coping behaviors are not successful in meeting an individual's adaptive needs. An individual's repertoire for handling stress, conflict, and change is determined by the persons's resources for the developmental level; the integrative potential of the personality; and the psychological character of the family group and other support systems (Adaptation Framework, 1979).

#### Spiritual Dimension

"The spiritual dimensions of adaptation derive from the fact that a human being is an integrated whole" (Adaptation Framework, 1979, p. 7). Essential to obtaining this whole is the relationship human beings have with a deity or ultimate reality. It is this relationship that gives individuals meaning and purpose in life and acts to promote love relationships essential for human existence. People who disavow any organized religious affiliation often admit to the transcendent nature of human beings as expressed in a desire for ultimate truth and beauty. Spiritual beliefs and practices are often associated with illness and help to fulfilling important human social and emotional needs. "Spiritual and religious sources influences the total person and may be important even to those who admit to no outward observance" (Adaptation Framework, 1979, p. 7).

### Sociocultural Adaptation

The fact that humans need humans in order to develop to their full potential is the basis for sociocultural adaptation. Sociocultural adaptation involves behaviors, resources, and responses for interacting with one's family, group, community, culture, and society and is heavily influenced by cultural values, beliefs, and traditions learned during childhood. Behavior toward others is prescribed by social norms and role expectations. Illness results when the person cannot adapt to the environment or rearrange the environment to allow adaptation (Adaptation Framework, 1979).

The Adaptation Framework is applicable to the study of the dimensions and resources of the individual, family, group, and community (Table 1). As a nursing theory, the Adaptation Framework utilizes the nursing process to establish how well clients are adapting to internal and external stimuli. This theory is also applicable to the nurse adapting to internal and external stress in the workplace.

### Review of the Literature

The relationship between occupational stress and intensive care and non-intensive care nursing has been studied primarily in the hospital settings using a variety of methods. This literature review will include findings

Table 1

Saint Louis University School of Nursing Adaptation  
Framework Dimensions and Resources

Individual	Family	Group	Community
Physiological	Physiological/ Biological	Physical Entity	Physical
Psychological	Psychodynamic	Psychodynamic	Psychological
Spiritual	Spiritual		Spiritual
Sociocultural	Sociocultural	Sociocultural	Sociocultural

Note. From Saint Louis University School of Nursing,  
Adaptation Framework (1979).



related to the stress response of intensive care, and non-intensive care nurses and flight nurses.

Stress Responses in the Intensive Care Nurse and Non-Intensive Care Nurse

Stehle (1981) noted that articles of stress associated with hospital nursing first appeared in the late 1950's and early 1960's. It was at this time the first intensive care units were opened. In a retrospective study, Stehle (1981) reviewed the literature addressing stress in intensive care nursing. Articles were chosen if the stated purpose of the article was to "explore, describe, categorize, reduce, compare, or manipulate stress experience by critical care nurses," (Stehle, 1981, p. 182). Ultimately, Stehle found 28 articles representing 19 investigations that met the inclusion criteria. These articles published between 1965 and 1979 focused on stress in a variety of intensive care settings, such as coronary care units, adult intensive care units, pediatric intensive care units, and neonatal intensive care units. From an analysis of the articles, Stehle (1981) concluded that "critical care units, although generally portrayed as highly stressful, were not shown to be more stressful than other types of nursing units," (Stehle, 1981, p. 182). The methodology of these early studies was primarily descriptive and generally concerned with the identification of intensive care stressors.

Gentry, Foster, and Froehling (1972) were among the first researchers to critically look at the role of situational stress in intensive care and non-intensive care nursing. Their study sample consisted of 26 nurses from three intensive care units and 8 nurses from general medical-surgical wards. Each participants was given a battery of standardized psychologic tests (1) Tennessee Self-Concept Scale; (2) Zung Self-Rating Depression Scale; (3) Buss-Durkee Hostility Inventory; and (4) the Minnesota Multiphasic Personality Inventory (MMPI) to measure self-concept, depression, hostility and guilt, and general personality patterns, respectively. Results revealed a significant difference between groups for self-rated depression, with two of the three intensive care nursing groups rating themselves as more depressed than the non-intensive care group. On the variable hostility, two out of three intensive care groups felt significantly more hostile. Finally, on the variable anxiety, two out of three intensive care groups felt a tendency towards more anxiety.

Gentry and Parkes (1982) reviewed a decade of research on psychologic stress in intensive and non-intensive care nurses and arrived at these conclusions:

In general, intensive care nurses tended to show more objective signs of anxiety, depression, and hostility than were shown by non-intensive care nurses. However, their

level of affect remained well within normal limits and thus was not viewed as "pathologic" in nature. The psychologic strain seen in intensive care nurses appeared to be a result of situational stressors (e.g., overwhelming work load, too much responsibility, poor communication with fellow workers, and limited work space) and not a by-product of personality differences between intensive care and non-intensive care nurses (Gentry & Parkes, 1982, p. 43).

Maloney (1982) examined job-related components of stress between a group of intensive care and non-intensive care nurses. "The major purpose of the study was to determine which group experienced greater stress levels as indicated by increased anxiety, psychosomatic problems, personal and family problems, and job dissatisfaction" (Maloney, 1982, p. 32). The sample used included 30 intensive care nurses from various adult intensive care units and 30 non-intensive care nurses. Ninety percent of the nurses were military nurses and 10 percent were civilian. The methodology consisted of the administration of four questionnaires: (1) the State-Trait Anxiety Index; (2) Somatic Complaints Index; (3) Job Satisfaction Index; and (4) Personal-Family Problem Index. Trait anxiety was defined as "a relatively stable personality trait characterized by feelings of diffuse apprehension and proneness to experience elevations in state anxiety in response to a wide variety of potentially stressful events" (Maloney, 1982, p. 32). In addition, Maloney defined state anxiety "as a response to a specific

potentially stressful event, distinguished by subjective feelings of apprehension and autonomic nervous system arousal" (Maloney, 1982, p. 32). Maloney found that non-intensive care nurses experienced more "state" anxiety than intensive care nurses ( $t = -5.46, P < .001$ ). Furthermore, non-intensive care nurses had significantly higher levels of trait anxiety ( $t = -5.23, P < .001$ ). The correlations of somatic complaints, job dissatisfaction, and personal-family problems were weak but more statistically significant for non-intensive care nurses than intensive care nurses. Boredom, was defined as "extent to which an individual finds a job to be dull or tedious" (Maloney, 1982, p. 32), was significantly more pronounced in non-intensive care nurses than intensive care nurses.

Maloney and Bartz (1983) examined the personalities of intensive care and non-intensive care nurses and their relationship to occupational stress tolerance. Specifically, they compared the two groups using three criteria (1) the degree of commitment versus alienation expressed, (2) the degree of internal versus external control perceived, and (3) the degree of challenge versus familiarity sought. The study population consisted of 33 non-intensive care nurses and 33 critical care nurses from a large Army medical center. The methodology utilized a three-part questionnaire to correlate the variables: (1)

the Interesting Experience Scale of the Hahn California Life Goals Evaluation Schedules, (2) the Rotter Internal versus External Locus of Control Test, and (3) the Alienation versus Commitment Test. The researchers obtained the following results. The intensive care nurse group had a significantly higher alienation score than the non-intensive care group. Secondly, the intensive care nurses felt relatively more externally controlled, and non-intensive care nurses felt relatively more internally controlled. Finally, the challenge score of the intensive care nurse group was significantly higher than that of the non-intensive care nurse group.

MacNeil and Weisz (1987) studied the relationship between psychological distress in non-intensive care units versus intensive care units. The primary focus of the study was to determine if nurses working in critical care units experience more psychologic distress than non-intensive care nurses. The researchers also examined the mediating effects of absenteeism, self-efficacy, and social support on individual perceptions of stress. The study population consisted of general staff nurses from 17 randomly selected clinical areas in an 1100-bed acute-care teaching facility. There were a total of 186 nurses respondents, of which 80 nurses were from adult or pediatric intensive units and 106 nurses were from non-intensive care units. The methodology consisted of the

administration of three questionnaires: (1) General Health Questionnaire to measure psychologic stress, (2) the Personal Support and Viewpoint Instrument to measure social support, and (3) Ilfeld's seven-item scale to measure self-efficacy. Data for absenteeism for each nursing unit in the study was collected over a 10-month period. Results of the General Health Questionnaire revealed that the non-intensive care nursing group had significantly higher psychologic distress scores and twice the rate of absenteeism than the intensive care nursing group. There was no significant difference between the two groups in terms of social support availability. After reviewing the literature, Milazzo, (1988) concluded that no study to date had confirmed the hypothesis that the intensive care nurse's environment is more stressful than that of nurses working in nonintensive care areas. Furthermore, many of these studies did not consider the individual's response to stressors (internal stress response), focusing instead on external stimuli. The researcher assumed that stress reactions are controlled by perception, therefore, individual perceptions appear to be basic to the understanding of stress. Consequently, stressors may evoke a response in one nurse and quite another type of response in a second nurse. "External factors, then, can only be considered stress-producing if they are perceived by the nurse as such" (Milazzo, 1988,

p. 53). Milazzo hypothesized that nurses in the intensive care areas would be more likely to report symptoms that they attributed to stress than nurses in non-intensive care areas. A pilot study was conducted utilizing a questionnaire and a structured open-ended interview technique. The questionnaire utilized questions that might indicate the presence of stress-related symptoms such as: sleep problems, physical and mental disorders, alcohol, caffeine and cigarettes, hypertension, and gastrointestinal disorders. A total of 103 nurses responded (N = 20 intensive care nurses and N = 83 non-intensive care nurses). Additionally, 20 interviews were conducted focusing on the same variables covered by the questionnaire. Results of the questionnaire and interview revealed that 33% of the intensive care nurses reported stress symptoms as opposed to 53% of nurses in non-intensive care areas.

#### Stress-Hardy Personality

Attempting to identify mediators of the stress-illness relationship, Kobasa and associates proposed the concept of hardy personality style (Kobasa, 1979; Kobasa, Maddi, & Courington, 1981). The authors characterize the high hardiness person in the following way:

Hardy persons have considerable curiosity and tend to find their experiences interesting and meaningful. They expect change to be the norm. Changes are perceived as natural,

meaningful, and even interesting despite their stressfulness, and in that sense are kept in perspective. Optimistic cognitive appraisals are made. Decisive actions are taken to find out more about the changes, to incorporate them into an ongoing life plan, and to learn from their occurrence whatever may be of value for the future (Kobasa, Maddi, & Courington, 1981, p. 369).

Conversely, the authors characterize the low hardiness person as:

People low in hardiness tend to find themselves and their environment boring, meaningless, and threatening. They feel powerless in the face of overwhelming forces, believing that life is best when it involves no changes. As such, they have no real conviction that development is either possible or important, and are passive in their interactions with the environment. When stressful events occur, such persons have little basis for optimistic cognitive appraisal or decisive actions that could transform the events. Because their personalities provide little or no buffer, the stressful events are allowed to have debilitating effect on health (Kobasa, Maddi, & Courington, 1981, p. 369).

From theoretical and empirical investigations, Kobasa (1979) was able to divide hardiness into three components: (1) commitment (2) control, and (3) challenge. By means of a retrospective study, Kobasa et al. (1979) sought to determine if the three components of hardiness could identify executives who experienced a large number of stressful life events, and who subsequently became ill, from executives who experienced the same high levels of stressor but remained healthy. Kobasa found that a group of executives identified as experiencing high stress with



accompanying illness had a low hardiness measure while the high-stress, low-illness group had a high hardiness measure. The results were enhanced by the fact that various demographic characteristics failed to discriminate the groups. This lends support to the hypothesis that hardiness may mediate the negative effects of life stressors, helping to prevent the development of illness.

Keane, Ducette, and Adler (1985) studied stress in the form of degree of nurse burnout and rating of "hardy" personality. The researchers wanted to know whether intensive care nurses experienced higher levels of burnout as compared to non-intensive care nurses. Their methodology included selection of a three group sample: (1) 38 intensive care nurse (2) 31 intermediate care nurses (control) (3) general staff nurses (control). The instruments used were the Staff Burnout Scale for Health Professionals and the Alienation from Self and Alienation from Work Scales of the Alienation Test (to measure hardiness). No significant relationships were noted between stress and burnout rates of intensive care nurses as compared to non-intensive care nurses. However, the relationship between hardiness and burnout was significant, indicating that the nurse considered "hardy" suffered less burnout.

McCranie, Lambert, and Lambert (1987) studied whether personality hardiness moderates the impact of job

stressors on burnout. The methodology consisted of administering three questionnaires: the Abridged Hardiness scale, the Tedium scale (to measure burnout), and the Nursing Stress Scale. The population consisted of 107 intensive and non-intensive care nurses from a variety of hospital units. The results showed that burnout was associated with higher levels of perceived job stress and that personality hardiness was a beneficial trait in reducing burnout.

#### Stress Response of Flight Nurses

The literature documenting the role that stress plays in flight nursing is sparse. Only one study presently exists which documents physiological or psychological changes reported by flight nurses.

Farrell and Allen (1973) studied the physiologic and psychologic changes associated with flying in jet aircraft versus propeller driven aircraft. Their methodology consisted of a survey questionnaire of 444 United States Air Force active duty female flight nurses. Their findings revealed that the nurses who flew in jet aircraft reported a significantly higher level of menstrual dysfunction, bruising of thighs and legs, and alterations in bowel habits, sleep patterns, and weight.

Studies which focused on flight attendants in the sample found findings of menstrual changes (Inglesias, Terres, & Chavarria, 1980). The authors found that 39% of

the stewardesses experienced unfavorable changes in their menstrual cycle after commencing aeronautical activities. The authors speculated that stress and internal desynchronization due to disruption of circadian rhythm may have caused the menstrual changes.

In a 1969 study, Green analyzed the incidence of morbidity from peptic ulcers disease in 1,313 British airline stewards over a nine year period. The authors found that the incidence of peptic ulcer disease in airline stewards mirrored the general British population.

#### Summary

During the decade of the 1970's, the premise that intensive care nursing is more stressful than non-intensive care nursing seemed to be accepted in the literature. Gentry, Foster, and Froehling's (1972) research mirrored this line of thought. However, research in the 1980's seems to refute the findings of the 1970's. Several studies in the 1980's (MacNeil & Bartz, 1983; Maloney, 1982; Maloney & Weisz, 1987; Milazzo, 1988) found that non-intensive care nurses were under more stress. The design limitations of Gentry's study seem to lie in his small sample size. Perhaps this alone can explain the contradictory findings of later studies that used considerably larger sampling techniques. The emphasis of all these studies has been on the identification of mediating stressors. The studies have examined

psychological and social traits (Keane et al., 1985; MacNeil & Weisz, 1987; Maloney & Bartz, 1983; McCranie, Lambert & Lambert, 1987; Milazzo, 1988) that could correlate or predict stress levels in the intensive and non-intensive care nurses. The stress-tolerant personality seems to be the best predictor of stress produced illness. Perhaps intensive care nursing is stressful, and this stress is offset by a selection or retention of stress-tolerant nurses to intensive care nursing. Other differences between the studies may be due to differences in specific demands in different hospital settings. Controlling internal validity of the intensive and non-intensive care sample was accomplished in the larger studies by drawing on many intensive and non-intensive care areas within a particular institution. This decreased the chance that a single isolated event such as a unit with an unpopular head nurse might impact the research. Replication of the findings that non-intensive care nursing is more stressful than intensive care nursing at different hospitals does lend itself to some generalization to nursing as a whole. However, a large study experimentally designed to include several hospitals replicating the same methodology is needed to increase confidence in the results. The role that stress plays in flight nursing continues to be a mystery primarily due to the lack of research in this area. Do

flight nurses perceive their jobs as stressful? Is the level of stress preceived by flight nurses similar or dissimilar to stress levels preceived by non-intensive care or intensive care nurses?

#### Implications for Nursing

There are several implications of these studies for professional nursing practice. First, more research effort should be devoted to stress management and alleviation in non-intensive care nurses. Second, research may assist in establishing ways to match the demands of the job to the traits of the person desirous of the job. Third, nurses can plan their career and functional area in nursing better if they have a better understanding of the demands of the job. Fourth, stress-hardiness plays a role in mediating perceived nursing stress. Last, there is limited research correlating stress with flight nursing.

#### Statement of the Problem

Identification of stress inherent to different functional areas of nursing could be helpful in the control of certain nursing job stressors. Research has established a link between stress and certain functional areas of nursing such as non-intensive care and intensive care nursing (Gentry, Foster, & Froehling, 1972; MacNeil & Weisz, 1987; Maloney, 1982; Maloney & Bartz, 1983; Milazzo, 1988). Replication of the results of earlier

research on nursing perceived stress is needed. Yet, there remains some areas of nursing that are relatively unexplored as to the level of perceived job stress. Flight nursing is one of these areas.

Flight nursing is a relatively new and growing career field, especially with the extensive use of aviation in trauma transport. Aeromedical evacuation of patients has long been the preferred transportation vehicle of the military. Military aeromedical evacuation involves the transport of patients requiring both intensive and non-intensive nursing care. Therefore, it falls in the middle on the continuum between non-intensive and intensive care nursing. Because research into flight nursing job stress is so sparse, it is the primary purpose of this study to examine the relationship between flight nurses and job stress.

#### Statement of Purpose

The purpose of this study is to conduct a survey of Air Force staff nurses working in intensive care units, non-intensive care units, and a flying unit to determine their levels of self-reported psychologic stress.

#### Research Question

What are the differences in psychologic stress self-reported in Air Force non-intensive care nurses, intensive care nurses, and flight nurses?

## CHAPTER II

### Methodology

#### Research Approach

This descriptive survey was designed to compare three groups of Air Force nurses: non-intensive care nurses, intensive care nurses, and flight nurses for levels of self-reported psychologic stress. The study sample consisted of 110 Air Force nurses working in non-intensive care nursing (n = 34) and intensive (n = 41) care nursing in a Air Force Medical Center as well as nurses in an aeromedical evacuation unit (n = 35). The subjects were asked to complete a biographic data sheet that sought information about descriptive characteristics of the sample and the (STAI) (Spielberger, Gorsuch and Lushene, 1970). The STAI was utilized to measure anxiety, a manifestation of stress, to determine which of the three groups experienced the highest level of self-reported stress.

#### Operational Definitions

Trait Anxiety - as measured by the Spielberger, Gorsuch and Lushene State-Trait Anxiety Inventory (1970) personality is a trait characterized by feelings of apprehension and proneness to experience elevations in state anxiety in response to a wide variety of potentially stressful events (Spielberger, 1972).

State Anxiety - as measured by the Spielberger, Gorsuch and Lushene State-Trait Anxiety Inventory (1970) is

a subjective feeling of apprehension characterized by autonomic arousal to a specific potentially stressful event (Spielberger, 1972).

Non-intensive care nurse - registered professional nurse who has worked for a minimum of three months in the care of persons whose illnesses are not expected to develop into serious unexpected crises. The job activities of non-intensive care nurses have greater predictability (Maloney, 1982, p. 32).

Intensive care nurse - registered professional nurse who has worked for a minimum of three months in the care of critically ill persons whose physical conditions are unstable and require constant observation (Maloney, 1982, p. 32). The job activities of intensive care nurses have less predictability.

Flight nurse - registered professional nurse who have worked for a minimum of three months in the inflight care of persons being transported by Air Force transport aircraft.

Air Force Medical Center - an institution which provides inpatient care services for a particular group of people associated with the Armed Forces.

#### Sample and Setting

The sample for this study was drawn from a population of registered nurses serving in the United States Air Force Nurse Corps. A 1000-bed Air Force Medical Center



located in a large metropolitan city in the Southwestern United States was used to collect a sample population of non-intensive care nurses and intensive care nurses. Additionally, participation of nurses from a Midwestern-based aeromedical evacuation unit was requested. This aeromedical unit is responsible for all Department of Defense aeromedical airlift services in the contiguous 48 states.

To participate in this study, nurses had to be involved in providing direct patient care. Non-intensive and intensive care supervisory nurses were eliminated from the study.

#### Sampling Plan

The nurses in this study comprised three groups: (1) non-intensive care nurses, (2) intensive care nurses, and (3) flight nurses. A minimum of thirty subjects per group was sought in order for the measuring instruments to detect group differences at the 0.7 power level. The convenience sample of flight nurses had a maximum of 44 possible respondents. In order to obtain thirty subjects from the flight nurse group, all eligible flight nurses were asked to participate. A list of potential subjects for the non-intensive care nurse group and intensive care nurse group was obtained from the nursing department of the medical center and aeromedical evacuation unit. The table of random numbers was used to determine the starting

point for the selection of non-intensive and intensive care nurses subjects. The rate of selection was then determined and a total of 75 subjects for the two groups were selected. Over sampling of the non-intensive care group (75 subjects) and the intensive care group (75 subjects) was conducted to ensure a minimum of thirty-five respondents and to decrease the possibility of a second mailing. The total number of subjects from all three groups was 194.

Table 2 outlines the possible number of subjects to be recruited from each of the three groups and the number of respondents.

Table 2

Number and Distribution of Subjects Selected

Institution	Eligible Nurses	Selected Nurses
Air Force Medical Center		
Non-intensive care nurses	231	75
Intensive care nurse	139	75
Aeromedical Evacuation Unit	44	44
Total	414	194

Instrumentation

The State-Trait Anxiety Inventory (STAI) (Appendix A) was used to collect data. The State-Trait Anxiety

Inventory is comprised of separate self-report scales for measuring two distinct anxiety concepts: state-anxiety (A-State) and trait anxiety (A-Trait). It was developed as a research instrument for investigating anxiety phenomena in non-psychiatrically disturbed adults. The STAI A-Trait scale consists of 20 statements that ask people to describe how they generally feel. The A-State scale also consists of 20 statements, but the instructions require subjects to indicate how they feel at a particular moment in time. The STAI was designed to be self-administered and instructions are printed on the test forms. The instrument usually takes about 20 minutes to complete both forms (Spielberger, Gorsuch, & Lushene, 1970). The range of possible scores for Form X varies from a minimum score of 20 to a maximum score of 80 on both of the subscales. Subjects respond to each item by rating themselves on a four-point Likert scale.

Normative data for the STAI (Form X) are available for large samples of undergraduate college students, military recruits and high school students. The test-retest reliability of the STAI A-Trait scale ranges from 0.73 to 0.86. Stability coefficients for the STAI A-State Scale tend to be low with ranges from 0.16 to 0.54. This would be expected for a measure designed to be influenced by situational factors. Both scales have a high degree of internal consistency with ranges from 0.83 to 0.92

(Spielberger, Gorsuch, & Lushene, 1970).

The concurrent validity of the STAI A-Trait has been shown by correlations of 0.75 with the IPAT Anxiety Scale and 0.80 with the Taylor Manifest Anxiety Scale. Evidence bearing on the construct validity of the A-State scale is available for a sample from 977 undergraduates college students (Spielberger, Gorsuch, & Lushene, 1970).

#### Data Collection

Permission to conduct the study was obtained from the Air Force, (Appendix B), the Institutional Review Committee of the Air Force Medical Center, supervisory personnel of the aeromedical evacuation unit (Appendix B), and Saint Louis University Institutional Review Board.

A listing of potential subjects names was obtained from the education department of the medical center and aeromedical evacuation unit. In order to maintain strict confidentiality, reseachers maintained exclusive control over the subjects list. The subjects list was destroyed four weeks after the data were analyzed. The data were collected by means of questionnaire. Each subject received a sealed envelope containing a copy of the cover letter (Appendix C), the instrument, a biographical data sheet, and a return envelope. In accordance with a Department of Defense regulations, all subjects asked to participate in the study also received a copy of the Privacy Act of 1974. In addition, a cover letter which

detailed the elements of informed consent accompanied each questionnaire to explain the purpose of the study (Appendix C). The subjects were asked to complete the questionnaire and biographical data sheet and return them to the researchers unsigned and uncoded. Participation in the study was voluntary and return of the completed questionnaire was considered consent to participate. A collection box was placed at the aeromedical evacuation unit to collect all flight nurse surveys. A total of 25 collection envelopes were placed on each of the units used for data collection at the medical center. These packets were collected by an assistant to the researcher in the medical center nursing education department and mailed in bulk to the primary investigator.

A second mailing was not conducted because several of the subjects had been reassigned to a new base or to another unit within the medical center and aeromedical evacuation unit and the initial return was perceived as adequate by the researcher. Table 3 outlines the rate of return of questionnaires from the three groups.

Table 3

Questionnaire Return Rates and Distribution of Subjects  
Selected

Institution	Sent	Returned	Returned	%
		Completed	Uncompleted	
Non-intensive care nurses	75	34	1	45%
Intensive care nurses	75	41	2	54%
Flight nurses	44	35	0	79%
Total	194	110	3	

## CHAPTER III

### Data Analysis

This chapter is presented in three general sections. Section one demographically describes the study sample. The second section describes relationships between state-trait anxiety and intensive care nurses, non-intensive care nurses, and flight nurses comparison groups. Section three is a summary of the findings.

#### Description of the Study Sample

For this study, 194 subjects comprising three groups, non-intensive care nurses, intensive care nurses, and flight nurses were selected to participated in the study. Data collection occurred from August 22 to September 19, 1988. Refer to table 3 for description of response rate. Table 4, Table 5, and Table 6 summarizes the demographic data for each of the respective comparison groups.

Of the non-intensive care nurses responding, a majority were between 22 and 30 years of age (77%) and graduates of a baccalaureate degree in nursing program (97%). One nurse had a masters degree in nursing. Most of the nurses (79%) reported having been a registered nurse for five or less years, followed by 9% of the nurses reporting 10 plus years as a registered nurse. The majority (94%) stating they had worked at their present

Table 4

Description of the Non-intensive Care Nurses Study  
Subjects - Frequency and Percentage Distribution of  
Demographic Characteristics

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Characteristics	Number	Percent
-----------------	--------	---------

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Age

Mean 27.29,  
 Mode 25,  
 Std Dev .666  
 Minimum 22  
 Maximum 39

Under 25 years	7	21%
25-30 years	19	56%
31-35 years	7	21%
36-40 years	1	2%
41 +	0	0%
Not reported	0	0%

Highest Nursing Educational  
Level Completed

Diploma in nursing	0	0%
Associate degree in nursing	0	0%
Bachelor's degree in nursing	33	97%
Master's degree in nursing	1	3%
Doctorate degree in nursing	0	0%
Other	0	0%

Length of Employment at Present Job

(Mean 17.23, Mode 12, Std Dev 9.1)  
 (Minimum 3, Maximum 33)

0-6 months	5	14%
7-12 months	8	24%
13-18 months	7	21%
19-24 months	4	11%
25-30 months	8	24%
31-36 months	2	6%
37-42 months	0	0%
43-48 months	0	0%
49-54 months	0	0%
55 +	0	0%



Table 4 (continued)

Characteristics	Number	Percent
<u>Total Number of Years as a Registered Nurses</u>		
(Mean 4.1, Mode 3, Std Dev 3.1)		
(Minimum 1, Maximum 13)		
0-=<1 years	4	12%
>1-2 years	8	23%
>2-3 years	9	26%
>3-4 years	2	6%
>4-5 years	4	12%
>5-6 years	2	6%
>6-7 years	0	0%
>7-8 years	0	0%
>8-9 years	2	6%
>9-10 years	0	0%
>10-11 years	2	6%
>11 + years	1	3%
<u>Type of Unit Currently Employed</u>		
Adult intensive care	0	0%
Pediatric intensive care	0	0%
Neonatal intensive care	0	0%
Coronary care unit	0	0%
Medical Intensive care	0	0%
Surgical intensive care	0	0%
Neuro-intensive care	0	0%
Burn unit	0	0%
General surgery floor	23	68%
General medical floor	3	9%
Combined general medical-surgical	3	9%
General pediatrics	4	12%
Flight nurse	0	0%
Other	1	2%

Table 5

Description of the Intensive Care Nurse Study Subjects -  
Frequency and Percentage Distribution of Demographic  
Characteristics

Characteristics	Number	Percent
-----------------	--------	---------

Age

Mean 30.6  
 Mode 30  
 Std Dev 3.88  
 Minimum 25  
 Maximum 43

Under 25 years	0	0%
25-30 years	22	53%
31-35 years	16	40%
36-40 years	3	7%
41 +		
Not reported	0	0%

Highest Nursing Educational  
Level Completed

Diploma in nursing	1	2%
Associate degree in nursing	0	0%
Bachelor's degree in nursing	39	96%
Master's degree in nursing	1	2%
Doctorate degree in nursing	0	0%
Other	0	0%

Length of Employment at Present Job

(Mean 20.3, Mode 12, Std Dev 17.3)  
 (Minimum 3, Maximum 96)

0-6 months	6	15%
7-12 months	9	22%
13-18 months	11	27%
19-24 months	3	7%
25-30 months	3	7%
31-36 months	5	12%
37-42 months	1	2%
43-48 months	2	4%
49-54 months	0	0%
55 +	0	0%

Table 5 (continued)

Characteristics	Number	Percent
<u>Total Number of Years as a Registered Nurses</u>		
(Mean 7.75, Mode 5, Std Dev 5.33)		
(Minimum 1, Maximum 24)		
0-=<1 years	2	5%
>1-2 years	0	0%
>2-3 years	4	10%
>3-4 years	3	7%
>4-5 years	7	17%
>5-6 years	6	15%
>6-7 years	4	10%
>7-8 years	2	5%
>8-9 years	4	10%
>9-10 years	1	2%
>10-11 years	0	0%
>11 + years	8	19%
<u>Type of Unit Currently Employed</u>		
Adult intensive care	11	27%
Pediatric intensive care	6	15%
Neonatal intensive care	4	10%
Coronary care unit	3	7%
Medical Intensive care	9	22%
Surgical intensive care	7	17%
Neuro-intensive care	0	0%
Burn unit	0	0%
General surgery floor	0	0%
General medical floor	0	0%
Combined general medical-surgical	0	0%
General pediatrics	0	0%
Flight nurse	0	0%
Other	1	2%

Table 6

Description of the Flight Nurse Study Subjects - Frequency  
and Percentage Distribution of Demographic Characteristics

Characteristics	Number	Percent
<u>Age</u>		
Mean 32.6		
Mode 33		
Std Dev 3.29		
Minimum 26		
Maximum 38		
Under 25 years	0	0%
25-30 years	10	29%
31-35 years	18	51%
36-40 years	7	20%
41 +	0	0%
Not reported	0	0%
<u>Highest Nursing Educational Level Completed</u>		
Diploma in nursing	1	3%
Associate degree in nursing	0	0%
Bachelor's degree in nursing	32	91%
Master's degree in nursing	2	6%
Doctorate degree in nursing	0	0%
Other	0	0%
<u>Length of Employment at Present Job</u>		
(Mean 20.0, Mode 24, Std Dev 10.68)		
(Minimum 3, Maximum 38)		
0-6 months	6	18%
7-12 months	4	11%
13-18 months	5	14%
19-24 months	9	26%
25-30 months	5	14%
31-36 months	5	14%
37-42 months	1	3%
43-48 months	0	0%
49-54 months	0	0%
55 +	0	0%

Table 6 (continued)

Characteristics	Number	Percent
<u>Total Number of Years as a Registered Nurses</u>		
(Mean 9.8, Mode 7, Std Dev 3.17)		
(Minimum 4, Maximum 16)		
0-=<1 years	0	0%
>1-2 years	0	0%
>2-3 years	0	0%
>3-4 years	2	6%
>4-5 years	0	0%
>5-6 years	3	8%
>6-7 years	6	18%
>7-8 years	3	8%
>8-9 years	2	6%
>9-10 years	4	11%
>10-11 years	4	11%
>11 + years	11	32%
<u>Type of Unit Currently Employed</u>		
Adult intensive care	0	0%
Pediatric intensive care	0	0%
Neonatal intensive care	0	0%
Coronary care unit	0	0%
Medical Intensive care	0	0%
Surgical intensive care	0	0%
Neuro-intensive care	0	0%
Burn unit	0	0%
General surgery floor	0	0%
General medical floor	0	0%
Combined general medical-surgical	0	0%
General pediatrics	0	0%
Flight nurse	35	100%
Other	0	0%

position for less than 30 months. Sixty-eight percent of the respondents reported working on general surgical floors, followed by general pediatrics (12%), and general medical floors and combined general medical-surgical floors each reporting 9% respectively. The data are summarized in Table 4.

Of the intensive care nurses responding, a majority were between the ages of 25 and 35 years of age (93%) and graduates of a baccalaureate degree in nursing program (95%). One nurse had a master's degree in nursing and another a diploma in nursing. Most of the nurses (65%) reported having been a registered nurse from two to nine years with 19% reporting 11 plus years as a registered nurse. The majority (90%) stated they had worked at their present position for less than 36 months. There was a wide distributions of intensive care working environments represented by the respondents: adult intensive care 27%, pediatric intensive care 15%, neonatal intensive care 10%, coronary care unit 7%, medical intensive care, 22%, and surgical intensive care 17%. The data are summarized in Table 5.

Of the flight nurses responding, a majority were between the ages of 25 and 35 years of age (80%), followed by 20% reporting their age between 36 and 40 years. The respondents were mainly graduates of a baccalaureate

degree in nursing program (91%). Two nurses (6%) had a masters degree in nursing and another a diploma in nursing. Most of the nurses (62%) reported having been a registered nurse from five to eleven years, with 32% reporting 11 plus years as a registered nurses. The majority (97%) stated they had worked at their present position for less than 36 months. Eighteen percent of the flight nurses had six months or less experience as a flight nurse. The data are summarized in Table 6.

#### Analysis of State-Trait Scores

As reflected by the data in Table 7, Table 8, and Table 9, the mean state scores of the participants from all three comparison groups were remarkably similar. Non-intensive care and flight nurses both had a mean score of 34.5 and the intensive care nurses had a mean score of 33.0. All three scores reflect no elevation of state stress as a group. Individual state scores over 39 could indicate the presence of stress as indicated from normative data derived from the STAI. Respectively, the non-intensive care, intensive care, and flight nurse groups had 22%, 29%, and 26% of their subjects reporting elevated state anxiety. Considered as a group, the three comparison groups are well within the norm for state anxiety as previously established from STAI normative data.

Table 7

State Scores obtained on the State-Trait Anxiety Index  
(STAI)

Group	N	Mode	Mean	Std Dev	Minimum	Maximum	Total
Non- intensive care nurses	34	23	34.5	9.523	20	56	1173

Characteristics	Number	Percent
-----------------	--------	---------

State Score

20-24	6	18%
25-28	6	18%
29-32	4	12%
33-36	4	12%
37-40	6	18%
41-44	1	2%
45-48	4	12%
49-52	2	6%
53-56	1	2%
57-60	0	0%
60 +	0	0%



Table 8

State Scores obtained on the State-Trait Anxiety Index  
(STAI)

Group	N	Mode	Mean	Std Dev	Minimum	Maximum	Total
Intensive care nurses	41	28	33.0	8.874	20	52	1355

Characteristics	Number	Percent
-----------------	--------	---------

State Score

20-24	9	22%
25-28	6	15%
29-32	6	15%
33-36	8	19%
37-40	4	10%
41-44	3	7%
45-48	1	2%
49-52	4	10%
53-56	0	0%
57-60	0	0%
60 +	0	0%



Table 9

State Scores obtained on the State-Trait Anxiety Index  
(STAI)

Group	N	Mode	Mean	Std Dev	Minimum	Maximum	Total
Flight Nurses	35	20	34.5	10.489	20	55	1209

Characteristics	Number	Percent
-----------------	--------	---------

State Score

20-24	8	24%
25-28	3	8%
29-32	7	20%
33-36	3	8%
37-40	3	8%
41-44	2	6%
45-48	5	14%
49-52	2	6%
53-56	2	6%
57-60	0	0%
60 +	0	0%

Considering mean trait scores, Table 10, Table 11, and Table 12 again a pattern of close similarity between the three comparison groups. Non-intensive care, intensive care, and flight nurses had respective mean score of 33.85, 33.8, and 34.6. All three scores reflect no elevation of state stress as a group. Individual state scores over 39 could indicate the presence of stress as indicated from normative data derived from the STAI. Respectively, the non-intensive care, intensive care and flight nurse group has 20%, 19%, and 20% of their subjects reporting elevated trait anxiety. Elevated trait scores would indicate a propensity towards more long-term anxiety disturbances. Analyzing the data from the group prospective does not indicate the presence of high levels of trait associated anxiety as established by STAI normative data.

#### Statistical Analysis of the Proposed Research Objective

A statistical analysis of the proposed research objective was performed using a one-way analysis of variance (ANOVA) referred to as a 1 X 3 ANOVA. Tables 13 and 14 summarize the findings.

Considering state anxiety, no significant difference was found between the three groups at the  $p = 0.05$  level ( $F = .7398$ ). In addition, no significant difference in the three comparison groups was found for trait scores at the  $p = 0.05$  level ( $F = .9015$ ).

Table 10

Trait Scores obtained on the State-Trait Anxiety Index  
(STAI)

Group	N	Mode	Mean	Std Dev	Minimum	Maximum	Total
Non- intensive care nurses	34	33	33.85	8.532	20	52	1151

Characteristics	Number	Percent
-----------------	--------	---------

Trait Score

20-24	4	12%
25-28	7	20%
29-32	4	12%
33-36	9	26%
37-40	4	12%
41-44	0	0%
45-48	3	9%
49-52	3	9%
53-56	0	0%
57-60	0	0%
60 +	0	0%

Table 11

Trait Scores obtained on the State-Trait Anxiety Index  
(STAI)

Group	N	Mode	Mean	Std Dev	Minimum	Maximum	Total
Intensive care nurses	41	37	33.8	7.521	21	52	1386

Characteristics	Number	Percent
-----------------	--------	---------

Trait Score

20-24	4	10%
25-28	8	19%
29-32	8	19%
33-36	7	18%
37-40	6	15%
41-44	5	12%
45-48	1	2%
49-52	2	5%
53-56	0	0%
57-60	0	0%
60 +	0	0%

Table 12

Trait Scores obtained on the State-Trait Anxiety Index  
(STAI)

Group	N	Mode	Mean	Std Dev	Minimum	Maximum	Total
Flight nurses	35	29	34.6	9.798	20	53	1212

Characteristics	Number	Percent
<u>Trait Score</u>		
20-24	6	17%
25-28	5	14%
29-32	6	17%
33-36	3	9%
37-40	6	17%
41-44	1	3%
45-48	5	14%
49-52	2	6%
53-56	1	3%
57-60	0	0%
60 +	0	0%

Table 13

One-Way ANOVA State Scores

				F-Statistic df = 2	
Group	N	Mean	Std Dev	F Ratio	F Prob.
<hr/>					
Non-intensive					
care nurses	34	34.5	9.523		
Intensive care					
nurses	41	33.0	8.874		
Flight nurses	35	34.5	10.489		
				.3022*	.7398*

\*(Not significant at a the .05 level)

Table 14

One-Way ANOVA Trait Scores

Group	N	Mean	Std Dev	F-Statistic df = 2	
				F Ratio	F Prob.
Non-intensive					
care nurses	34	33.85	8.532		
Intensive care					
nurses	41	33.8	7.521		
Flight nurses	35	34.6	9.798		
				.1038*	.9015*

\*(Not significant at a the .05 level)



## CHAPTER IV

### Summary and Discussion

This chapter discusses the findings, limitations, and nursing implications of this study. Recommendations are made for future study.

#### Summary

This descriptive survey was designed to compare three groups of Air Force nurses, non-intensive care nurses, intensive care nurses, and flight nurses, for levels of self-reported psychologic stress. The literature review showed that during the 1970's, the premise that intensive care nursing is more stressful than non-intensive care nursing seemed to be accepted in the literature (Gentry, Foster, & Froehling, 1972). However, studies in the early 1980's contradicted this premise, finding that non-intensive care nurses were under more stress than intensive care nurses (MacNeil & Weisz, 1987; Maloney, 1982; Maloney & Bartz, 1983). The literature also contained little recent information of psychological stress experienced by flight nurses.

Seventy-five nurses were randomly selected from general medical-surgical and pediatric units to comprise the non-intensive care group. The intensive care group was also randomly selected, consisting of 75 nurses from a variety of adult, pediatric, and neonatal intensive care units. A convenience sample of 44 flight nurses was

selected.

Descriptive frequency distributions and percentages were used to describe the demographic characteristics of the respondents. Levels of stress were measured by self-reported anxiety utilizing the State-Trait Anxiety Scale (Spielberger, Gorsuch, & Lushene, 1970).

A total of 194 questionnaires were distributed with 113 returned: non-intensive care nurses (34), intensive care nurses (41), flight nurses (35) and incomplete and unusable (3). A one-way analysis of variance was used to determine the relationship between the comparison groups and the dependent variable state-trait anxiety.

#### Discussion of Findings

The findings of this study failed to reveal any significant differences between the non-intensive care nurses, intensive care nurses, and flight nurses in regards to level of self-reported stress. The mean state-trait anxiety scores for each group was entirely in the normative range for the STAI. The failure to reproduce earlier results and the relevancy of this study's findings are unclear. Perhaps the pendulum of stress in nursing has swung back from the findings of the early 1980s studies that non-intensive care nursing is more stressful (MacNeil & Weisz, 1987; Maloney, 1982; Maloney & Bartz, 1983). *Key group: stress psychological*

It is interesting to note that state-anxiety scores *not in the normative range*

for individuals comprising 22% of the non-intensive care group, 29% of the intensive care group, and 26% of the flight nurses were elevated above norms for the STAI. In addition, trait-anxiety scores for individuals comprising 20% of the non-intensive care group, 19% of the intensive care group, and 20% of the flight nurses were elevated. This indicates that stress is present in the comparison groups but that this stressed is balance by a majority of subjects reporting low state-trait anxiety.

Concerning flight nurses, the findings indicate that flight nurses experience stress similar to their non-intensive care and intensive care nurse counterparts.

#### Limitations of the Study

The methodological design of the study limits the study's generalizability for several reasons: (1) only one hospital and one aeromedical evacuation squadron was used, (2) the small sample comprising all three comparison groups, and (3) lack of follow up of survey nonresponders.

Since work environment of Air Force flight nurses differ in respects to the type of aircraft flow and total number of patients carried per mission, generalizability of the results to civilian flight nurses is limited.

Another limitation associated with a survey is that there may be misinterpretation of the survey questions by the subjects, and respondents may select answers that are not representative of their true feelings but rather

reflect the respondent's perception of the socially acceptable answer or what is considered the desired answer by the researcher. Other variables such as hardiness, job satisfaction factors, and subject gender were not examined in this study and may be factors that influenced the results.

#### Implications for Nursing

The relevancy of this study to nursing is unclear. The failure of this study to replicate the findings of earlier studies, finding non-intensive care nurses under more stress than intensive care nursing is puzzling. Many factors could account for these findings including a small subject size and the fact that all of the subjects were Air Force nurses. It is possible that nurses who enter or remain in the Air Force may have a harder personality and a resistance to stressors. The factor of volunteerism could also have influenced the results. Perhaps the subjects who responded feel a lower response to stress than those who did not respond.

The findings of this study may indicate a change in the level of self-reported stress of non-intensive care nurses. More likely, the findings indicate that studying individuals rather than groups for self-reported stress is the preferred methodology, since approximately 20% of each group reported elevated state-trait anxiety.

Stress and its relationship to flight nursing appears

to mirror that of non-intensive care and intensive care nurses.

#### Recommendations for Future Research

Future research should address methodological problems by increasing sample size and utilizing a more horizontal sampling technique with several hospitals and groups of flight nurses.

Other instruments such as the newly refined 36-item Hardiness Scale (Kobasa, 1987) could be utilized in conjunction with the STAI to determine the effect of hardiness and its relationship to self-reported stress. Also a tool to check for the socially accepted answer by respondents to control for that factor could be given with the STAI.

In order to decrease the limitations of a self-reported survey, a physiological determinant of stress such as urine sodium-potassium ratios could be utilized along with questionnaire results.

Compare Air Force nurses and civilian like groups for levels of psychological stress.

## **APPENDIX A**

### **Instrument**

BIOGRAPHICAL DATA

1. Please check each of the answers that applies to you concerning your Nursing EDUCATION?

☐ DIPLOMA NURSING PROGRAM  
☐ ASSOCIATE DEGREE IN NURSING  
☐ BACCLAUREATE DEGREE IN NURSING  
☐ MASTERS OF SCIENCE IN NURSING  
☐ DOCTORATE DEGREE IN NURSING  
☐ OTHER (PLEASE SPECIFY) \_\_\_\_\_

2. What AREA of Nursing are you PRESENTLY working?

☐ ADULT INTENSIVE CARE  
☐ PEDIATRIC INTENSIVE CARE  
☐ NEONATAL INTENSIVE CARE  
☐ CORONARY CARE UNIT  
☐ MEDICAL INTENSIVE CARE  
☐ SURGICAL INTENSIVE CARE  
☐ NEURO-INTENSIVE CARE  
☐ BURN UNIT  
☐ GENERAL SURGERY FLOOR  
☐ GENERAL MEDICAL FLOOR  
☐ COMBINED GENERAL MEDICAL-SURGICAL FLOOR  
☐ OTHER (PLEASE SPECIFY) \_\_\_\_\_

3. How long have you been working at your PRESENT JOB?  
(YEARS and MONTHS)

\_\_\_\_\_

4. What is the TOTAL number of YEARS have you been PRACTICING NURSING?

\_\_\_\_\_

5. What was your AGE at your last birthday? \_\_\_\_\_

# SELF-EVALUATION QUESTIONNAIRE

Developed by Charles D. Spielberger  
in collaboration with  
R. L. Gorsuch, R. Lushene, P. R. Vagg, and G. A. Jacobs

STAI Form Y-1

Name \_\_\_\_\_ Date \_\_\_\_\_ S \_\_\_\_\_

Age \_\_\_\_\_ Sex: M \_\_\_\_\_ F \_\_\_\_\_ T \_\_\_\_\_

**DIRECTIONS:** A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you feel *right now*, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

NOT AT ALL  
MODERATELY SO  
VERY MUCH SO

- |  |     |     |     |     |
|--|-----|-----|-----|-----|
| 1. I feel calm .....                                       | (1) | (2) | (3) | (4) |
| 2. I feel secure .....                                     | (1) | (2) | (3) | (4) |
| 3. I am tense .....  | (1) | (2) | (3) | (4) |
| 4. I feel strained .....                                   | (1) | (2) | (3) | (4) |
| 5. I feel at ease .....                                    | (1) | (2) | (3) | (4) |
| 6. I feel upset .....                                      | (1) | (2) | (3) | (4) |
| 7. I am presently worrying over possible misfortunes ..... | (1) | (2) | (3) | (4) |
| 8. I feel satisfied .....                                  | (1) | (2) | (3) | (4) |
| 9. I feel frightened .....                                 | (1) | (2) | (3) | (4) |
| 10. I feel comfortable .....                               | (1) | (2) | (3) | (4) |
| 11. I feel self-confident .....                            | (1) | (2) | (3) | (4) |
| 12. I feel nervous .....                                   | (1) | (2) | (3) | (4) |
| 13. I am jittery .....                                     | (1) | (2) | (3) | (4) |
| 14. I feel indecisive .....                                | (1) | (2) | (3) | (4) |
| 15. I am relaxed .....                                     | (1) | (2) | (3) | (4) |
| 16. I feel content .....                                   | (1) | (2) | (3) | (4) |
| 17. I am worried .....                                     | (1) | (2) | (3) | (4) |
| 18. I feel confused .....                                  | (1) | (2) | (3) | (4) |
| 19. I feel steady .....                                    | (1) | (2) | (3) | (4) |
| 20. I feel pleasant .....                                  | (1) | (2) | (3) | (4) |



**Consulting Psychologists Press**  
577 College Avenue, Palo Alto, California 94306



# SELF-EVALUATION QUESTIONNAIRE

STAI Form Y-2

Name \_\_\_\_\_ Date \_\_\_\_\_

**DIRECTIONS:** A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

ALMOST NEVER  
SOMETIMES  
OFTEN  
ALMOST ALWAYS

- |  |     |   |   |   |
|--|-----|---|---|---|
| 21. I feel pleasant .....  | (1) | 2 | 3 | 4 |
| 22. I feel nervous and restless .....  | (1) | 2 | 3 | 4 |
| 23. I feel satisfied with myself .....   | (1) | 2 | 3 | 4 |
| 24. I wish I could be as happy as others seem to be .....  | (1) | 2 | 3 | 4 |
| 25. I feel like a failure .....  | (1) | 2 | 3 | 4 |
| 26. I feel rested .....  | (1) | 2 | 3 | 4 |
| 27. I am "calm, cool, and collected" .....   | (1) | 2 | 3 | 4 |
| 28. I feel that difficulties are piling up so that I cannot overcome them .....                      | (1) | 2 | 3 | 4 |
| 29. I worry too much over something that really doesn't matter .....                                 | (1) | 2 | 3 | 4 |
| 30. I am happy .....   | (1) | 2 | 3 | 4 |
| 31. I have disturbing thoughts .....   | (1) | 2 | 3 | 4 |
| 32. I lack self-confidence .....   | (1) | 2 | 3 | 4 |
| 33. I feel secure .....  | (1) | 2 | 3 | 4 |
| 34. I make decisions easily .....  | (1) | 2 | 3 | 4 |
| 35. I feel inadequate .....  | (1) | 2 | 3 | 4 |
| 36. I am content .....   | (1) | 2 | 3 | 4 |
| 37. Some unimportant thought runs through my mind and bothers me .....                               | (1) | 2 | 3 | 4 |
| 38. I take disappointments so keenly that I can't put them out of my<br>mind .....                   | (1) | 2 | 3 | 4 |
| 39. I am a steady person .....   | (1) | 2 | 3 | 4 |
| 40. I get in a state of tension or turmoil as I think over my recent concerns<br>and interests ..... | (1) | 2 | 3 | 4 |

## APPENDIX B

### Permission to Conduct Study

17 MAY 1988

DPMYOS

Request of Survey Approval (Your Ltr, 28 Apr 88)

AFIT/XPX

1. Capt William Dean's request to survey USAF nurses using a biographical questionnaire and the two psychological instruments, "Self-Evaluation Questionnaire" from Consulting Psychological Press and the "Personal Views Survey" from the Hardiness Institute, is approved providing the student ensures all copyrighted materials are used with permission. Please be advised the use of personality inventories or similar psychological measurements are not normally approved for survey research within the Air Force as a matter of policy; however, given the benign nature of the instruments, the research question, and the facts that response is voluntary and respondents will remain anonymous, approval is granted.

2. In addition, we wish to offer the following suggestions and observations which we feel may enhance Capt Dean's research efforts:

a. There is no need for a Privacy Act statement when the data collected cannot be attributed to any individual respondent and is used for aggregate analysis only. A statement to the effect that the survey is strictly anonymous and voluntary and that subjects should not list either their name nor SSAN on the forms will suffice.

b. To be statistically representative of the nursing groups under consideration, sample sizes should be increased. In the case of flight nurses, the actual population is quite small (approximately 175) and we recommend a census. We cannot supply estimates of the number of nurses in the other groups.

c. Finally, we strongly recommend Capt Dean shorten his introductory letter to a few simple paragraphs which clearly and concisely state the purpose of his research (e.g., I am studying stress levels within the nurse corps). It should state that the survey is voluntary and anonymous and should include a point of contact for any questions the respondent may have. Offering details of the research design, ethical considerations, analysis strategies, and so forth, only complicates the survey instructions. It does not increase response rates and may bias subjects' responses. Further, a short and concise explanation is more considerate of the respondents' time and will save printing costs.

3. This study has been assigned USAF Survey Control Number 88-63 (USAF SCN 88-63). This number expires 30 September 1988 and is required on the front cover of each survey packet in the upper right corner, along with the assigned expiration date.

4. If we may be of further assistance, please call Capt Carol Maske, AUTOVON 487-5680/2265, or write HQ AFMPC/DPMYOS, Randolph AFB TX 78150-6000.

FOR THE COMMANDER

SIGNED

CHARLES H. HAMILTON, GM-13  
Chief, Personnel Survey Branch

cc: AFIT/CIMI (Capt Goetz)

Capt William Dean  
42104 Florida Street  
Scott AFB IL 62225

## APPENDIX C

### Cover Letter to Participant



St. Louis University  
Medical Center

School of Nursing

300 North 11th Street  
St. Louis, MO 63103  
(314) 241-1000

William Michael Dean  
42104 Florida Street  
Scott AFB, IL 62225  
Phone (618) 744-1358

Dear Colleague:

1. My name is Mike Dean. I am a graduate student at Saint Louis University School of Nursing. I am requesting your participation in my Master's project on stress. Two-hundred and five Air Force nurses, seventy-five from non-intensive care units, seventy-five from intensive care units, and fifty-five from an aeromedical evacuation unit will be asked to participate.

2. The purpose of this study is to identify which of three categories of Air Force nursing (non-intensive care nursing, intensive care nursing, and an flight nursing) is associated with the highest level of self-reported stress.

3. I am asking you to participate by completing the questionnaire and the demographic data sheet. It takes approximately 20 minutes to complete both the questionnaire and the demographic data sheet. Return of the demographic data sheet and questionnaire will be considered your consent to participate.

4. There are no foreseeable risks associated with participation in this study. There are no perfectly right answers, therefore, it is essential that you answer the questions as to how they truthfully pertain to you. Please answer all questions.

5. Confidentiality will be maintained throughout the study. In accordance with the Privacy ACT of 1974. This survey has been given United States Air Force Survey Control Number SCN 8863. Your answers to the survey will be completely confidential. The questionnaire will be returned to me UNSIGNED. If you decide to participate, complete the questionnaire and data sheet and return them in the enclosed stamped envelope. Results of this study will be reported only in aggregate form and may also be published. Results will be made available to you upon request. There will be no efforts made to establish individual identities. Data sheets and questionnaires will be destroyed.



St. Louis University  
Medical Center

School of Nursing

4055 S. Lindbergh Blvd.  
St. Louis, MO 63111-1500  
(314) 286-1000

6. The data from the demographic data sheet will be utilized to collect generalized information about sex, age, educational, experience and work experience.

7. While there may be no immediate benefit for your participation in this study, long range benefits maybe a better understanding of job related stress in non-intensive care nursing, intensive care nursing, and flight nursing.

8. Participation in this study is voluntary. Your alternative is not to participate. Participation will have no effect on your present position.

9. Any questions you have concerning this study or participation in it now or after you have returned the questionnaire may be addressed to me at the address given or feel free to call me at (618) 744-1358.

10. In the event you believe you have suffered any injury as a result of participation in the research project, you are to contact the Chairman of the Saint Louis University Institutional Review Board (664-9800, Ext. 106), who will be able to refer you to the individual who will review the matter with you, identify other resources that may be available to you, and provide further information as to how to proceed.

11. The above points express the purpose of this study and the potential benefits to the participating Air Force nurses. If you are willing to participate, please complete the questionnaire and return it as soon as possible.

12. These elements of informed consent conform to the assurance given by Saint Louis University to the Department of Health and Human Services to protect the rights of human subjects.

Thank you for your time.

Sincerely,

WILLIAM M. DEAN  
Graduate Nursing Student  
Saint Louis University

APPENDIX D

Privacy Act Statement



## PRIVACY ACT STATEMENT

In accordance with paragraph 30, AFR 12-35, Air Force Privacy Act Program, the following information about this survey is provided:

(A) AUTHORITY:

10 U.S.C. 8012, Secretary of the Air Force: Powers and Duties, Delegation by.

(B) PRINCIPLE PURPOSE:

This survey is being conducted to identify which of three categories of Air Force nursing (non-critical care nursing, critical care nursing, and an flight nursing) is associated with the highest level of perceived stress. It also attempts to identify intervening factors.

(C) ROUTINE USE:

The information collected will be used to identify areas of job related stress. No respondent will be identified in any way.

(D) Participation in this survey is entirely voluntary.

(E) No adverse action of any kind may be taken against any individual who elects to participate in this survey.

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VITA AUCTORIS

William Michael Dean [REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED] He earned a Bachelor of Science in Nursing from East Tennessee State University, Johnson City, Tennessee in 1980.

He served as a staff nurse in Kingsport, Tennessee prior to joining the United States Air Force Nurse Corp where he has served eight years. He has practiced nursing in the following areas: medical-surgical, cardiac care stepdown, pulmonary medicine, and aeromedical evacuation.

At this time, he is a candidate for the degree of Masters of Science in Nursing (Research) with a major in Cardio-pulmonary Nursing at Saint Louis University, Saint Louis, Missouri.